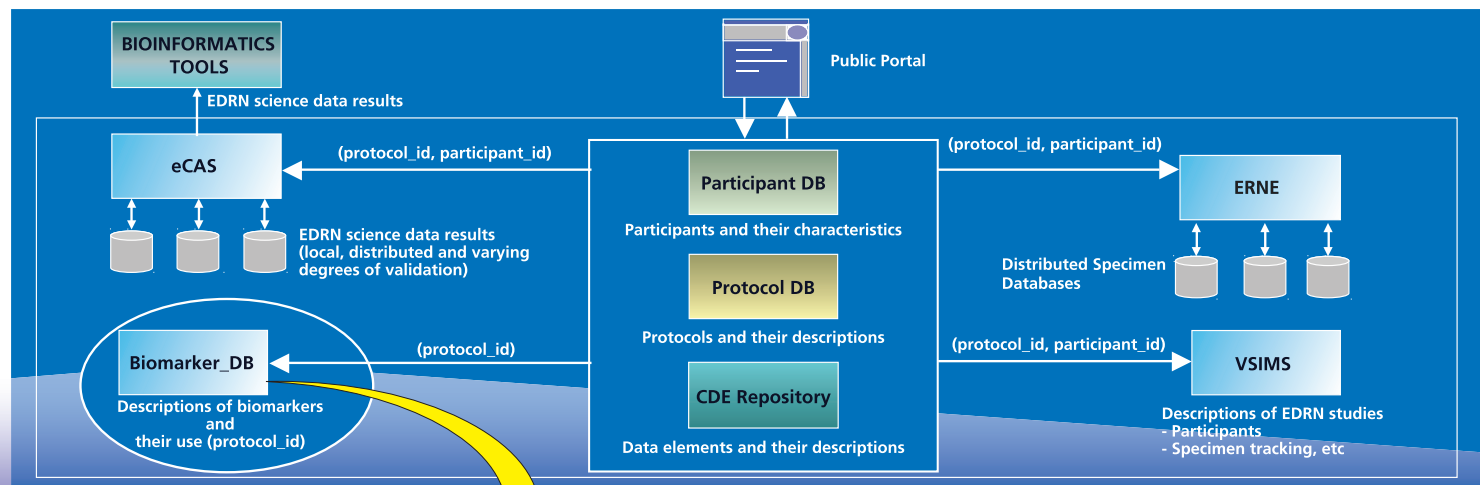
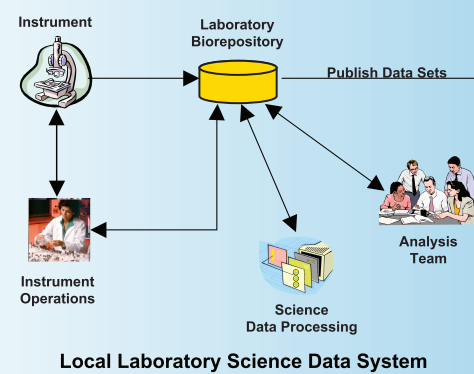


# EDRN Knowledge Environment



## Phase 1 Preclinical Exploratory

Exploratory  
studies to  
identify  
potentially useful  
biomarkers

|  |  |   |   |   |  |   |  |  |  |                                   |  |  |                                   |   |                                   |                                     |   |  |                                   |
|--|--|---|---|---|--|---|--|--|--|-----------------------------------|--|--|-----------------------------------|---|-----------------------------------|-------------------------------------|---|--|-----------------------------------|
| POTENTIALLY USEFUL BIOMARKERS  | EXPLORATORY STUDY  | BIOLOGICAL MATERIALS  | AFIRMETRIX GENE EXPRESSION                          | MICROARRAYS   | GEL PROCESSING                                   | PROTEIN ASSAYS  | MASS SPECTROMETRY                                | PROTEIN IDENTIFICATION   | DATA ANALYSIS  | RESULTS                           | FINDINGS   | REFERENCE  | TISSUE PREPARATION PROTOCOL       | SLIDE PREPARATION PROTOCOL              | MICRODISSECTION PROTOCOL          | PROCESSING OF MICRODISSECTED TISSUE | DNA ANALYSIS PROTOCOL                   | RNA ANALYSIS PROTOCOL                            | PROTEIN ANALYSIS PROTOCOL         |
| Name of the biomarker (e.g., CC2)  | Name of the biomarker (e.g., CC2)  | Name of the biomarker (e.g., CC2)   | Name of the biomarker (e.g., CC2)                   | Name of the biomarker (e.g., CC2)                                 | Name of the biomarker (e.g., CC2)                | Name of the biomarker (e.g., CC2)                                 | Name of the biomarker (e.g., CC2)                | Name of the biomarker (e.g., CC2)  | Name of the biomarker (e.g., CC2)                                | Name of the biomarker (e.g., CC2) | Name of the biomarker (e.g., CC2)  | Name of the biomarker (e.g., CC2)  | Name of the biomarker (e.g., CC2) | Name of the biomarker (e.g., CC2)       | Name of the biomarker (e.g., CC2) | Name of the biomarker (e.g., CC2)   | Name of the biomarker (e.g., CC2)       | Name of the biomarker (e.g., CC2)                | Name of the biomarker (e.g., CC2) |
| Synonyms   | Cancer type (e.g., colon cancer)   | Cancer type (e.g., colon cancer)  | Cancer type (e.g., colon cancer)                    | Cancer type (e.g., colon cancer)                                  | Cancer type (e.g., colon cancer)                 | Cancer type (e.g., colon cancer)                                  | Cancer type (e.g., colon cancer)                 | Cancer type (e.g., colon cancer)   | Cancer type (e.g., colon cancer)                                 | Cancer type (e.g., colon cancer)  | Cancer type (e.g., colon cancer)   | Cancer type (e.g., colon cancer)   | Cancer type (e.g., colon cancer)  | Cancer type (e.g., colon cancer)        | Cancer type (e.g., colon cancer)  | Cancer type (e.g., colon cancer)    | Cancer type (e.g., colon cancer)        | Cancer type (e.g., colon cancer)                 | Cancer type (e.g., colon cancer)  |
| Cancer type (e.g., colon cancer)   | Specimen type (e.g., serum-based)  | Type of biological material used (e.g., whole tissue, cytology sample, blood)   | Number of cases (e.g., 86)                          | Description of LCM (Laser Capture Microdissection)                | Description of gel processing experiment         | Protein assay protocol  | Description of Mass Spectrometry (MS) experiment | Description of protein identification                                      | Selected type of samples to compare                              | Control (e.g., normal)            | Technology used for measurement of gene/protein expression (e.g., 2-DE, LC, CAT) | Link to ERNE reference   | Tissue preparation description    | Slide preparation description           | Microdissection description       | DNA analysis description            | RNA analysis description                | Protein analysis description                     |                                   |
| Description of the biological rationale  | Study type (e.g., DNA, RNA, Protein)   | Study objective (e.g., biomarker development and validation)  | Number of controls (e.g., 10)                       | Description of microarray experiment                              | Image processing software name and version       | Protein assay protocol description                                | MS instrument name and version                   | Database search program used   | Selected numbers of samples to compare                           | Control (e.g., normal)            | Findings from measurement of gene/protein expression                             | Link to Gene Ontology reference  | 70% Ethanol Fixation              | For Laser Capture Microdissection (LCM) | For Manual Microdissection        | Processing description              | For RNA-based studies                   | Gene-specific RT-PCR                             |                                   |
| Description of the justification for the value of the marker                       | Study objective (e.g., biomarker development and validation)   | Pathology sample type (e.g., bulk tissue, intraoperative diagnosis slide, histology slide, cultured cells in vitro, flow sorted cells, cytology specimen) | Number of Affymetrix probe-sets (e.g., 7129)        | Description of microarray experiment                              | Software provider                                | Chemical treatment  | MS instrument name and version                   | Software name and version  | Description of the source of normal tissue                       | Case mean (e.g., -2.164)          | Findings from measurement of protein composition of organelles                   | Taxonomy (e.g., Homo sapiens)  | Low-melt Polyester Embedding      | For Manual Microdissection              | Manual Microdissection            | For DNA-based studies               | Comparative Genomic Hybridization (CGH) | Targeted Differential Display                    |                                   |
| Description of the suggestion for further investigation                            | Study target (e.g., nuclear matrix proteins)   | Number of genes observed (e.g., 4966)   | Number of genes observed (e.g., 4966)               | Spot detection algorithm  | Number of genes from training samples (e.g., 50) | Description of treated analyte                                    | Instrument manufacturer                          | Database name used for protein identification (e.g., MSDB)                 | Description of the source of abnormal/diseased tissue            | Control mean (e.g., -0.887)       | Findings from analysis of post-translational modifications                       | TaxID (e.g., 9606)   | Paraffin Embedding                | Link to protocol details                | Immunol-LCM                       | For RNA-based studies               | Dideoxy Fingerprinting                  |  |                                   |
| Evaluation of the discriminant ability in distinguishing cancer cases and controls | Biomarker discovery status (e.g., ongoing, complete)   | Number of training samples (e.g., 43)   | Number of training samples (e.g., 43)               | Spot matching algorithm   | Microdissected tumor                             | Description of Lumines Multianalyte Profiling (MAP) (panel assay) | Description of MALDI/SELDI-TOF-MS                | Database timestamp (e.g., 2009227)   | Statistical method description                                   | Up/down (e.g., up)                | Findings from analysis of protein-protein interactions                           | Link to GeneCards reference  | Link to protocol details          | PI name                                 | Link to protocol details          | For Protein-based studies           | Loss of Heterozygosity                  | Protein sample preparation for Mass Spectrometry |                                   |
| Evaluation of the predictive ability of this biomarker                             | Approach (e.g., proteomics, genomics, methylation, genomics, libraries and immune response, autopsies, mice models, spectral imaging, gene expression) | Method of processing Affymetrix chips   | Number of genes from training samples (e.g., 50)    | Description of LC-ESI-MS/MS                                       | Link to methods details                          | Link to protocol details URL                                      | Description of LC-MALDI/SELDI-MS/MS              | Number of sequences in this timestamp (e.g., 1,942,918)                    | Statistical method description                                   | Heat (e.g., -4.917)               | Findings from analysis of protein-drug interactions                              | Link to Alass and descriptions (HGNC, Entrez Gene, UniProt/Swiss-Prot, UniProt/TrEMBL, OGB, OMIM, GeneLoc) | Institution                       | Comments                                | Comments                          | Link to protocol details            | Link to protocol details                | Institution                                      |                                   |
| Sensitivity %  | Technology (e.g., SELDI-TOF-MS)  | Method of quantile-normalizing the data   | Link to the protocol details URL                    | Description of CDE (Comparative Genomic Hybridization) experiment | Link to 2-D gel files URL                        | Link to raw data files URL  | Link to LC-ESI-MS/MS                             | Number of residues at this timestamp (e.g., 629,040,312)                   | Significance testing description                                 | p-value (e.g., 0.0004)            | Findings from analysis of protein-drug interactions                              | Link to Genomics location (GeneLoc, HGNC, Entrez Gene, UCSC, Ensemble)                                     | Comments                          |   |                                   | Comments                            | Comments                                | Comments   |                                   |
| Specificity %  | Description of pre-specified hypotheses  | Method of creating annotation for the probe-sets on the chips   | Link to the protocol details URL                    | Link to raw array CDE experiment data URL                         | Link to DIGE gel files URL                       | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Description of the biomarker examined in normal versus diseased            | Normalization technique  | adjusted-p-value (e.g., 0.0004)   | Findings from analysis of protein-drug interactions                              | Link to Proteins (UniProt/Swiss-Prot, RefSeq, Ensemble)  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
| Positive Predictive Value  | PI name  | Link to Affymetrix chip data file for tumor and normal samples  | Cancer status from which the specimen was collected | Summary of gel processing experiment analysis results             | Link to 2-D gel files URL                        | Link to DIGE gel files URL  | Link to LC-ESI-MS/MS                             | Description of the biomarker examined in different organ sites             | Results of sensitivity analyses                                  | Confidence intervals              | Findings from analysis of protein-drug interactions                              | Link to Protein domains/families (InterPro, Prosite, UniProt/Swiss-Prot, Blocks)                           |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
| PI name  | Institution  | Method of creating annotation for the probe-sets on the chips   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Description of the biomarker examined in benign diseases of the same organ | Results of specificity analyses                                  | Confidence intervals              | Findings from analysis of protein-drug interactions                              | Link to Ontologies and pathways (Gene Ontology, KEGG)  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
| Institution  | Comments   | Link to intensity values for each sample for each probe-set (gene)  | Cancer status from which the specimen was collected | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Description of the biomarker examined in premalignant lesions              | Figure type (e.g., HuFL affymetrix chip, cDNA microarrays, etc.) | Confidence intervals              | Findings from analysis of protein-drug interactions                              | Link to Drugs and compounds (BioRxiv, PubMed)  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
| Comments   |  | Link to data analysis file  | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in different organ sites                    | Sensitivity %  | Confidence intervals              | Findings from analysis of protein-drug interactions                              | Link to Transcripts (GenBank/EMBL/DBS, UniGene, RefSeq, UniProt/Swiss-Prot)                                |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  | Comments  | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in benign diseases of the same organ        | Specificity %  | Confidence intervals              | Findings from analysis of protein-drug interactions                              | Link to Expression in human tissues (GeneWiki, GeneAnnot, GeneTDB, UniGene, Expression Assays)             |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | Positive Predictive Value  | Confidence intervals              | Findings from analysis of protein-drug interactions                              | Link to Similar genes in other organisms (PhosphoSite, eGenes, SDO, MGO)                                   |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              | Link to Paralogous (HomoGene)  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              | Link to SNPs/variants (NCBI SNP database, UniProt)   |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              | Link to Disorders & mutations (OMIM, UniProt, HGMD)  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              | Link to Protein structure (PDB)  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              | Link to literature reference   |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              | PubMed ID  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              | PubMed URL   |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              | Keywords   |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              | Link to Web reference  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              | List of all other relevant studies   |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              | PI name  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              | Institution  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              | Comments   |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL                                    | Link to LC-ESI-MS/MS                             | Link to the biomarker examined in premalignant lesions                     | PI name  | Confidence intervals              | Findings from analysis of protein-drug interactions                              |  |                                   |   |                                   | Comments                            | Comments                                | Comments   |                                   |
|  |  |   | Link to the protocol details URL                    | PI name   | Link to raw array CDE experiment data URL        | Link to MS peak list files URL</                                  |  |  |  |                                   |  |  |                                   |   |                                   |                                     |   |  |                                   |

## Phase 2 Clinical Assay and Validation

Studies to  
determine the  
capacity of  
biomarkers to  
distinguish  
between people  
with cancer and  
those without

| CLINICAL TRIAL BIOMARKERS   | EVIDENCE  | VALIDATION STUDY  | ASSAY METHODS   | STUDY DESIGN  | CASE DATA  | CONTROL DATA   | CYTOMETRIC DATA  | CLINICAL DATA  | CELL LINE DATA  | PATHOLOGY IMAGE DATA   | TUMOR GENETICS  | MOLECULAR TARGET  | PROGNOSTIC INDICATOR  | CLINICAL QUESTIONS  | STATISTICAL ANALYSIS METHODS  | DATA ANALYSIS RESULTS  | PRESENTATION   | DISCUSSION   | REFERENCE |
|---|---|---|---|---|--|--|--|--|---|--|---|---|---|---|---|--|--|--|-----------|
| Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Description of the biological rationale<br>Description of the justification for the potential interest<br>Description of the justification for the value of the marker<br>Description of the suggestion for further investigation<br>Evaluation of the discriminant ability in distinguishing cancer cases and controls<br>Evaluation of the predictive ability of this biomarker<br>Sensitivity %<br>Specificity %<br>Positive Predictive Value<br>PI name<br>Institution<br>Comments | Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Evidence Description<br>Prediction for some outcome of interest<br>Evidence data that is associated with some clinical parameter<br>Evidence data that is prognostic<br>Evidence data that is diagnostic<br>Evidence data that identifies sub-populations of patients<br>Findings about disease markers – diagnosis<br>Findings about disease markers – patient profiling<br>Findings about drug targets – discovery<br>Findings about drug targets – validation<br>Findings about drug targets – clinical trials<br>Findings about drug targets – patient monitoring (before, during & after treatment)<br>PI name<br>Institution<br>Comments | Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Specimen type (e.g., tissue-based)<br>Study objective (e.g., clinical trial and validation)<br>Biomarker validation status (e.g., ongoing, complete)<br>Case (e.g., invasive CRC)<br>Control (e.g., normal)<br>Case mean (e.g., -0.164)<br>Control mean (e.g., -0.887)<br>Updown (e.g., up)<br>Heat (e.g., -4.917)<br>p-value (e.g., 0.0004)<br>adjusted p-value (e.g., 0.0004)<br>Link to raw data<br>Link to tables<br>Link to figures<br>PI name<br>Institution<br>Comments | Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Assay method description<br>Specific assay method used<br>Specific protocol used<br>Specific reagents used<br>Specific kits used<br>Quality control procedures<br>Reproducibility assessments<br>Quantitation methods<br>Scoring methods<br>Reporting methods<br>Description of how assays were performed<br>Linked to the study endpoint<br>Description of the robustness and reproducibility of the assay<br>Inter-laboratory reproducibility<br>Intra-laboratory reproducibility<br>Reproducibility of PCR<br>Description of the scalability of the assay<br>PI name<br>Institution<br>Comments | Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Study design description<br>Case selection method (e.g., prospective or retrospective)<br>Stratification method (e.g., stratified by stage of disease, age)<br>Specific time period from which cases were taken<br>End of the follow-up time period<br>Median follow-up time period<br>Description of all clinical endpoints examined<br>List of all candidate variables initially considered for inclusion in models<br>Rationale for sample size<br>Specific effect size<br>Target power<br>Distributions of basic demographic characteristics (e.g., age and gender)<br>Distributions of standard cancer-specific prognostic variables<br>Distributions of tumor marker<br>PI name<br>Institution<br>Comments | Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Case description<br>Case submitter<br>Cell line<br>Organism<br>Diagnosis/morphology (e.g., benign condition)<br>Stereopathology (e.g., colon)<br>Source<br>Treatments received<br>Inclusion and exclusion criteria<br>Selection method (e.g., randomized or rule-based)<br>PI name<br>Institution<br>Comments | Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Control description<br>Control submitter<br>Cell line<br>Organism<br>Diagnosis/morphology (e.g., benign condition)<br>Stereopathology (e.g., colon)<br>Institution<br>Selection method (e.g., randomized or rule-based)<br>PI name<br>Institution<br>Comments | Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Cytometric description<br>Cell count (e.g., 9)<br>FlowID (e.g., 20+), Near-diploid 40+ (35-57)<br>Cytometric technique used<br>Link to image file<br>PI name<br>Institution<br>Comments | Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Cell line description<br>Cell line name<br>Source & catalog number<br>Tissue type<br>Culture medium<br>Medium selection<br>PI name<br>Institution<br>Comments | Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Pathology image description<br>Organ/tissue of origin (e.g., colon)<br>Tumor classification (e.g., adenocarcinoma)<br>Organ/tissue affected<br>Diagnosis<br>Method (e.g., IHC for alpha actinin)<br>Antibody (e.g., C03-delta)<br>Link to pathology image file<br>PI name<br>Institution<br>Comments | Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Tumor genetics description<br>Genes involved<br>Proteins involved<br>Allele<br>Chromosome<br>Description of genetic changes<br>Mutations/alterations (e.g., deletion)<br>Organ/tissue of origin (e.g., colon)<br>Tumor classification (e.g., adenocarcinoma)<br>Tumor name<br>Treatment type<br>Treatment agent<br>Metastasis tumor<br>PI name<br>Institution<br>Comments | Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Molecular target description<br>Gene name<br>Protein name<br>Pathways<br>Ontology/functional classification<br>Anomaly (e.g., overexpression, underexpression, mutation)<br>Drugs<br>Interventions<br>Molecular profiles<br>PI name<br>Institution<br>Comments | Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Prognostic indicator description<br>Standard prognostic variables<br>Correlation between the biomarker and standard prognostic variables<br>Prediction of whether the biomarker is likely to serve as an independent indicator<br>Suggestion of the biomarker that has better assay characteristics<br>Suggestion of the biomarker that is easier to measure<br>Description of new information about the disease<br>PI name<br>Institution<br>Comments | Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Clinical question description<br>Preliminary proposal of a clinical question for which the marker might be useful<br>Supporting data<br>Statistical significance value<br>Type (e.g., diagnosis, prognosis, prediction of response, disease monitoring)<br>Description of the sensitivity of the assay<br>Description of the accuracy of the assay<br>Description of the correlation with other measures<br>PI name<br>Institution<br>Comments | Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Statistical analysis description<br>List of all specific statistical methods used<br>Description of any variable selection procedures<br>Description of model building issues<br>Description of how model assumptions were verified<br>Description of how missing data were handled<br>Description of how biomarker values were handled in the analysis<br>Description of methods used for cutoffpoint determination<br>PI name<br>Institution<br>Comments | Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Data analysis result description<br>Results of multivariable analyses showing the relation of the marker to standard prognostic variables<br>Results of univariate analyses showing the relation between the marker and outcome<br>Estimated hazard ratio<br>Estimated survival probability<br>Other estimated effects<br>Confidence intervals<br>Statistical significance<br>Results of internal validation<br>Results of sensitivity analyses<br>Results of specificity analyses<br>PI name<br>Institution<br>Comments | Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Presentation description<br>Link to Kaplan-Meier plot for the effect a tumor marker on a time-to-event outcome<br>Link to diagram to show the relation of the marker to standard prognostic variables<br>Link to other presentation files<br>PI name<br>Institution<br>Comments | Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Discussion description<br>Description of pre-specified hypotheses<br>Interpretation of the results in the context of the pre-specified hypotheses<br>Interpretation of the results in the context of other relevant studies<br>Discussion of limitations of the study<br>Discussion of implications for future research<br>Discussion of implications for future clinical value<br>PI name<br>Institution<br>Comments | Name of the biomarker (e.g., CC2)<br>Cancer type (e.g., colon cancer)<br>Reference<br>Cancer type (e.g., colon cancer)<br>Link to literature reference<br>PubMed ID<br>PubMed URL<br>Keywords<br>Link to Web reference<br>List of all other relevant studies<br>PI name<br>Institution<br>Comments |           |

**Phase 3 Retrospective Longitudinal** Determine how well biomarkers detect preclinical disease by testing the markers against tissues collected longitudinally from research cohorts

**Phase 4 Prospective Screening** Identify the extent and characteristics of disease detected by the test and determine the false referral rate

**Phase 5 Cancer Control** Evaluate both the role of the biomarkers for detection of cancer and the overall impact of screening on the population through large-scale screening on the population through large-scale population studies

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